

Chlorine

What is chlorine?

Chlorine is shipped as a liquid in trucks and trains but quickly forms a gas when it escapes from its storage container. It is used widely in chemical manufacturing, bleaching, drinking water and swimming pool disinfecting, and in cleaning agents.

Could chlorine be used for a terrorist attack?

Since chlorine is so abundant, it could be released intentionally as a terrorist act. Trucks, trains or storage tanks containing chlorine could all be targets of a terrorist attack. The sudden release of chlorine could form a gas cloud that could spread into neighborhoods and injure people. Experts are concerned that it may be intentionally released into a crowded area. Chlorine is most harmful if released into an enclosed area such as inside a building or subway car rather than outdoors.

How can people be exposed to chlorine?

Because chlorine is used by industry in large quantities and used in homes and public pools, an accidental release of chlorine gas from any of these sources could result in illness. Breathing chlorine gas or having liquid chlorine touch skin could make people ill.

How can people recognize that they are sick from chlorine gas?

Chlorine smells like bleach, and the odor is often described as a sharp and burning. Even small amounts of the gas may cause immediate tearing of the eyes and burning of the eyes, nose, throat, and chest. It can cause shortness of breath, coughing, and wheezing. It is common for even mild symptoms from chlorine gas to make people feel anxious. Once exposure is stopped, mild symptoms usually quickly go away. Breathing large amounts of chlorine may cause more serious effects to the eyes, throat and lungs and make breathing difficult. In general, breathing large amounts of gas and staying in a gas cloud longer will cause more severe symptoms and possibly cause death.

How soon after exposure do the symptoms appear?

People breathing chlorine gas, even in small amounts, may experience immediate tearing of the eyes and burning eyes, nose, throat and chest.

How can people avoid exposure?

If chlorine is released in an area, the best prevention is to leave the area. Those inside at the time should tune in to an emergency alert system (EAS) on the TV or radio for instructions, such as whether to stay where they are (shelter in place) or go somewhere else. **Running outside may be more dangerous than staying inside.**

What should people do if they have been exposed?

The longer people breathe chlorine, the sicker they may get, therefore, it is important to act quickly if exposed. Immediately move to fresh air. If liquid chlorine soaks clothing or splashes onto skin, then take clothes off right away and wash with large amounts of water to flush away the chemical. If eyes are splashed with liquid or large amounts of gas, then flush the eyes with water. If trouble breathing does not quickly go away (within minutes) seek medical attention. Often the local emergency department is the best place for a medical evaluation after chemical exposures.

Can chlorine poisoning spread from one person to another?

People that have only breathed the gas and moved quickly out of the area are not likely to have chlorine on their clothes or skin. Chlorine poisoning can spread to another person only if the clothing or skin of the person initially exposed is covered in large amounts of the gas or soaked in liquid chlorine. If in doubt, removing the outer layer of clothing is all that is necessary for most people.

How is chlorine poisoning diagnosed and treated?

No blood tests are available to find chlorine in the body. People who are seriously ill may have blood tests or other tests conducted (for example, x-rays) to help doctors see if the lungs or other organs have been injured. Many people exposed or ill may not need any tests for their care. The only treatment is to relieve symptoms. Most people who are exposed get well. People who have experienced serious symptoms (e.g., severe and prolonged trouble breathing) may need to be hospitalized.

Can exposure to chlorine cause long-term problems?

People who have a single small exposure and feel better quickly usually do not have other chlorine related symptoms later.

Where can more information about chlorine be found?

If you need immediate medical attention, call 911 or go to a local emergency department. For a suspected poisoning, contact the regional poison center (1-800-222-1222). More information about the health effects of chemical poisonings can be found through the Virginia Department of Health at www.vdh.virginia.gov/EPR/Agents.asp or through the U.S. Centers for Disease Control and Prevention at www.bt.cdc.gov or www.atsdr.cdc.gov.